

123 NutritionDay in European ICU's

Applicant & Research director:

Prof. Michael Hiesmayr
Adm. Director
Division of Cardiac- Thoracic- Vascular Anaesthesia & Intensive Care
Medical University Vienna
Währinger Gürtel 18-20
A-1090 Vienna
Austria

Tel: +43-1-40400-4109
Fax: +43-1-40400-4110
Email: michael.hiesmayr@meduniwien.ac.at

Coworker & Partner Medical University Vienna:

Prof. Peter Bauer, Div. Medical Statistics
Prof. Wilfred Druml, Internal Medicine, Div. Nephrology
Prof. Ludwig Kramer, Internal medicine, Medical ICU 13H1
Dr. Karin Schindler, Internal medicine, Div. Endocrinology and Metabolism
Dr. Christian Schuh, Medical Computer Sciences, Div. Knowledge based systems.

Partner ESICM Sections:

POIC (M Hiesmayr)
HSRO (P Metnitz)
MENN (JC Preiser) Workgroup Nutrition (S. Ruiz-Santana)

Partner Organisations:

European Society for Clinical Nutrition and Metabolism (ESPEN)
P. Singer

Background

Nutritional intervention is an important part of therapy contributing to a patient's outcome in hospital including patients on Intensive Care Units. Malnutrition at ICU – admission is a problem concerning one third of patients¹. Despite of intense nutritional approaches to improve patient's nutritional status - or at least to keep a steady-state - sometimes fail and malnutrition develops further². It is known that malnutrition can prolong illness. Thus a prophylaxis ensuring the best possible nutritional care adapted to special cases and individual demands would be needed.

According to the 2006 released guidelines by the ESPEN giving evidence-based recommendations on nutrition the enteral route should be the preferred way of feeding the critically ill patient and an important way of counteracting the catabolic state induced by severe illness. Enteral nutrition should be given to all ICU patients who are not expected to be taking a full oral diet within three days. It should be begun during the first 24h using a standard high-protein formula. During the acute and initial phases of critical illness an exogenous energy supply in excess of 20-25kcal/kg BW/day should be avoided, whereas during recovery the aim should be to provide values of 25-30 total kcal/kg BW/day. Supplementary parenteral nutrition remains a reserve tool and should be given only to those patients who do not reach their target nutrient intake on enteral nutrition alone. Although there are detailed guidelines on feeding patients, malnutrition is still an important issue concerning all hospitalised patients.

There are several aspects of nutritional care where little consensus exists and where practical implementation may vary between ICUs. Disagreement exists about the tolerable energy deficit, the route of administration, the actual energy needs, the composition of artificial nutrition given and the role of specific nutrients such as glutamine, arginine, omega-3 fatty acids or micronutrients. The positive effects on healing of some of these additional are just experiment-based without definitive clinical experience.

The target caloric intake depends on the specific situation and changes for example for patients with sepsis or trauma. It is very important to identify the patient's needs to determine the energy requirement. The use of stress factors may introduce substantial errors for estimations of energy expenditure, since there is no definitive guide referring to the stress factors that should be used in different clinical situations³⁴⁵⁶⁷⁸.

So there are still questions and uncovered fields which are not part of the existing guidelines. The consequence is a varying interpretation and practical use of recommendations when looking at and comparing ICUs all over Europe.

Preliminary research & research synergies

The multinational project "NutritionDay in European hospitals" (www.nutritionday.org) is the basis for the new started "123 NutritionDay on ICUs". In January 2006 the "NutritionDay" project took place in 23 European countries including 15 000 patients. Data from the NutritionDay 2006 countries provide a clear picture of the current situation concerning malnutrition, nutrition practice and therefore consecutively to patient's safety.

The "NutritionDay" was developed by a group of ESPEN members at the Medical University of Vienna, where a small team built up a network, which now unites some hundred European hospitals and different professional groups involved in nutritional care. Many professionals involved in this first NutritionDay project are as well - directly or indirectly - involved in nutritional care on the ICU. Our intention is to use this existing network of competence and experience for the development of a specific NutritionDay for the ICU.

Specific aims

The specific aim of this project is to assess nutritional therapy on ICUs on a cut-off-date and then detect correlations between nutritional therapies and outcome based on a capacious European sample. Outcome includes length of stay and mortality on ICU and in hospital. Comparing the individual unit with the whole population and considering existing nutritional guidelines and recommendations should allow a local benchmarking for participants.

Research design, methods and recruitment

The study is planned as a non-interventional, prospective and crosssectional survey on all kinds of Intensive Care Units all over Europe. Outcome should be evaluated 30 days after the first assessment.

The survey consists of 4 questionnaire pages:

Questionnaire 1: ICU structure and resources:

- Type of ICU
- staff
- nutritional practice & guidelines

Questionnaires 2 3 4: Are dedicated to the individual patient:

Q2: general information about the patient:

- demographic data
- reasons for ICU-admission
- admission score SAPS II

Q3: general information about the patient on the ICU nutritionDay:

- actual status
(using SOFA score and laboratory parameters)
- treatments & interventions
(inotropes, insulin, sedation, pain medication, renal replacement therapy ...)
- NEMS Score
- infectious complications

Q4: individual nutritional approach:

- type of nutrition
- caloric intake
- patient feeling & well-being
- composition of used products
- use of additional

There will be one extra-sheet for documentation of the patient's outcome. All necessary codes and explanations will be on the questionnaires.

In the first year it is planned to provide the questionnaires in five languages (English, French, German, Italian, and Spanish). The questionnaires will be freely accessible for a web-based download. Units can either send us a paper version of the data or transfer the data via internet. "NutritionDay on ICU" will use the existing network from "NutritionDay 2006" for communication and recruitment.

As before in the "NutritionDay 2006" project there will be a database with possibility to get access via internet. Communication will be web based. All information and necessary training for participation will be electronically.

NutritionDay on ICU will take place on the same day as "NutritionDay 2007" what will be in January 2007.

In contrast to the preliminary study of "NutritionDay 2006" it will be possible and necessary for some participating ICUs to repeat the survey in following weeks. This is a question of data safety because populations on ICUs are rather small and a one-day-survey might not be representative for a unit. Thus the repetition of the survey improves the data internal validity. The typical patient sample will be 24-30 patients. This workload appears to be feasible even in busy ICUs if the workflow has been well designed and adequate preparation was possible.

Population

All patients admitted to the ICU should be included. There are no criteria for excluding patients. Regarding data quality and product safety all patients should be integrated into the survey. Patients can refuse to answer the patients-related questions.

The desired sample size for one ICU should be 18 to 30 patients. Therefore some ICUs will have to repeat the survey weekly 3 to 4 times to achieve this sample size. A patient who is still on ICU on the following day(s) of the survey must not be included for a new assessment anymore. Outcome is always evaluated 4 weeks after the survey. That means that ICUs with repeated assessment will also have repeated outcome evaluation.

After 2 years we plan to have 10 000 patients in our database, 100-200 per category for a safe analysis.

Ethical aspects

NutritionDay on ICUs is just observing patients without any intervention. There is no harm or danger for participants.

All data will be processed anonymously. There are no names or date of birth entered into the database. Also the anonymity of participating ICUs will be protected.

Written consent is not necessary. If possible, patients will be informed orally and asked to answer some questions. Each ICU should hang up a standardised poster informing patients and visitors about "NutritionDay on ICU" shortly describing aims and ensuring patient's safety.

Patients have an active part when answering some questions about their subjective well-being referring to digestion and nutrition uptake. Patients can refuse to answer these questions but still remain in the survey.

Literature

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⁸ Preiser JC et al., Management of Nutrition in European intensive care units: results of a questionnaire. Intensive Care Medicine (1999) 25: 95-101